

EXHIBITIONS AND NOTICES.

June 27, 1911.

FREDERICK GILLET, Esq., Vice-President,
in the Chair.

The Secretary read the following report on the additions made to the Society's Menagerie during the month of May 1911:—

The registered additions to the Society's Menagerie during the month of May were 445 in number. Of these 163 were acquired by presentation, 200 by purchase, 41 were received on deposit, 25 in exchange, and 16 were born in the Gardens.

The total number of departures during the month, by death and by removals, was 204.

Amongst the additions special attention may be called to the following:—

1 African Rhinoceros (*Rhinoceros bicornis*) ♂, from Nairobi, received from R. B. Woosnam, Esq., C.M.Z.S., for H.M. THE KING'S African Collection, on May 19th.

1 Californian Sea-Lion (*Otaria californiana*) ♀, from the North Pacific Ocean, purchased on May 10th.

2 Three-coloured Parrot-Finches (*Erythrura trichroa*), new to the Collection, from New Guinea, received in exchange on May 4th.

A Collection of 38 Fishes, received on May 1st, comprising the following species, all new to the Collection:—

4 Sword-tails (*Xiphophorus helleri*) from Mexico, 2 Fighting Fish (*Betta splendens*) from Singapore, 2 Fan-tailed Cyprinodons (*Rivulus flabellicauda*) from Mexico, 2 Elegant Cyprinodons (*Haplochilus elegans*) from the Niger River, 2 Chaper's Cyprinodons (*Haplochilus chaperi*) from Sierra Leone, 2 Timid Cyprinodons (*Haplochilus panchax*) from Cochin India, presented by P. Arnold, Esq.; 2 Poey's Cyprinodons (*Rivulus poeyi*) from Para, 6 Ocellated Cyprinodons (*Rivulus ocellatus*) from Santos, 10 Zebra Fish (*Dania rerio*) from Bengal, presented by G. A. Boulenger, Esq., F.Z.S.; 2 Freshwater Flying-Fish (*Pantodon buchholzi*) and 2 Gular Cyprinodons (*Fundulus gularis*) from the Niger River, and 2 Rainbow Fish (*Trichogaster labius*) from Bengal, purchased.

MR. D. SETH-SMITH, F.Z.S., the Society's Curator of Birds, exhibited two immature Black-backed Porphyrios (*Porphyrio melanotus*) which had been bred in the Gardens, and remarked upon their possession of a well-developed claw (text-fig. 200, p. 986) on the pollex. Although these wing-claws were said to be functional only in the Hoatzin amongst living birds, the exhibitor believed that they were so also in the present species and also probably in

the Common Moorhen, these birds using them in climbing amongst reeds and herbage.

Text-fig. 200.



Wing of young *Porphyrio melanotus* with well-developed claw.

Mr. J. LEWIS BONHOTE, M.A., F.Z.S., exhibited a pair of Egyptian Desert-Mice (*Meriones crassus*) which showed a darker and more rufous colour than normal examples. This coloration had been artificially produced by keeping the animals in a moist atmosphere at 80° Fahr. They were first exposed to these conditions on the 7th of April, and a month later were conspicuously darker; after that the darkening process still continued, but more slowly, and they appeared for some time previous to being killed to have reached a limit to their darkening. During this same period, and owing to the fine weather, other examples had been in a temperature that rose during the day to 90°, falling at night to 60° or even lower. This had apparently produced no change in their coloration. The change in the examples exhibited was therefore probably due rather to the humidity than to the temperature of the atmosphere. Mr. Bonhote was therefore inclined to think that the pale colour of desert animals was due to the extreme dryness of the atmosphere rather than to any special assimilation of their colour to the surroundings.

Dr. W. T. CALMAN, F.Z.S., exhibited a number of living specimens of the Brine Shrimp (*Artemia salina*), bred from Tidman's Sea Salt. The Brine Shrimp, a small Crustacean

belonging to the Sub-class Branchiopoda, was found in various parts of the world, living in salt lakes and in the shallow ponds in which sea-water is exposed to evaporation for the manufacture of salt. It formerly occurred in England, but had probably long been extinct in this country. An accidental observation recently made at the Natural History Museum showed, however, that it was a very easy matter to obtain a supply of living specimens. "Tidman's Sea Salt," as sold in the shops, frequently, if not always, contained living eggs of *Artemia*, and an 8% solution, allowed to stand for a few days, was found to contain a swarm of nauplius larvæ. The first attempt at rearing these failed owing probably to lack of food-material in the water. The juice of green leaves pounded in a mortar and strained through muslin was found to be a suitable food, and the addition of a few drops of this at intervals of about a week enabled the specimens exhibited to be raised to maturity. All of them were females, and swarms of larvæ of the second (parthenogenetic) generation had appeared.

The SECRETARY remarked that on a recent visit to the Ostrich Farm of Mr. Carl Hagenbeck at Stellingen, near Hamburg, he had seen in the incubator fertile eggs of *Struthio massaicus* from German East Africa, *S. australis* from South Africa, and *S. molybdophanes* from Somaliland, the eggs all having been laid at Stellingen. A. Reichenow ('Die Vögel Afrikas,' vol. i. p. 7) had already described and figured certain specific differences in the number and arrangement of the pits on the eggs of these species. He himself had been interested to notice that the eggs of the Masai Ostrich were much larger than those of the others, more spherical in shape, and very smooth and porcelanous in texture. Those of the Cape Ostrich were somewhat similar in shape and texture, but were much smaller; Mr. Hagenbeck had informed him that a pair of the Masai Ostrich bred by himself and sent out to the Cape were regarded by expert ostrich farmers there as unusually large birds. The eggs of the Somali Ostrich were larger than those of the Cape Ostrich, but smaller than those of the Masai species, and were markedly oval in shape with a rougher, less polished surface.

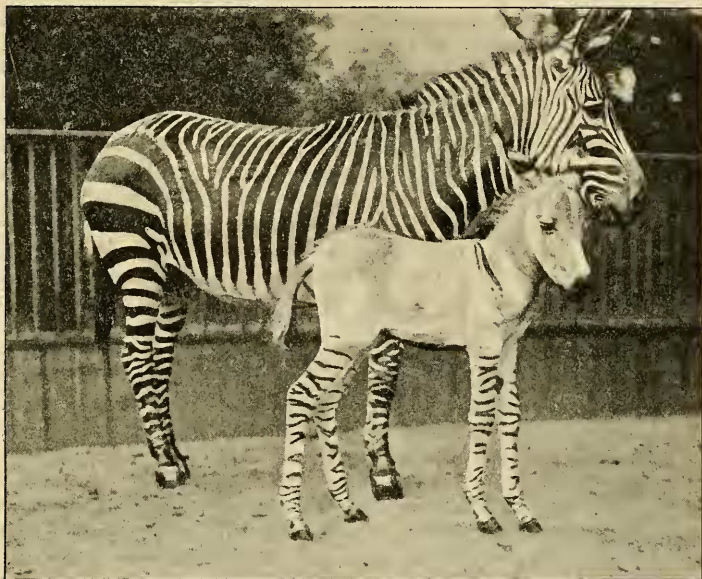
The SECRETARY also remarked that on his recent visit to Mr. Hagenbeck's Zoological Park at Stellingen, near Hamburg, he had the pleasure of seeing a fine young pair of the common African Rhinoceros, obtained from British East Africa, the exact locality being unknown. The male closely resembled the ordinary figures and mounted examples of the species, in that the skin appeared to be smoothly stretched over the sides of the body, but the ears were fringed with long tufts of hair. The female, on the other hand, had no hair on the margin of the ears, and the general external appearance was very different. At first sight it seemed

as if it were in very poor condition, the ribs standing out through the skin, but closer inspection showed that in reality the skin of the flanks was disposed in thick, permanent folds, arranged roughly like ribs. Thinking it possible that these differences might indicate the existence of distinct races of the Rhinoceros, on returning to London he had at once examined the Society's own pair of examples of this species, both of which had come from British East Africa, probably somewhere near Nairobi. The female, purchased in 1906, had the ears unfringed with hair, like those of Mr. Hagenbeck's female, but the rib-folds on the skin were no more than indicated, although there were very heavy permanent folds round the neck. In the male, obtained in the current year from Nairobi as part of the King's African Collection, the ears were fringed with hair as in Mr. Hagenbeck's male, whilst the rib-like folds on the skin were extremely strongly marked, as in the case of Mr. Hagenbeck's female. The presence or absence of the marginal fringe on the ears was therefore probably either an individual or a sexual character. In the absence of knowledge of the exact provenance of all the four examples, nothing could be said as to whether or no the presence of the rib-like permanent folds on the body were racial. Their existence, however, as well as the presence of the heavy fold round the neck, showed that it was not correct to distinguish the Asiatic Rhinoceroses from those of Africa by the presence in the former of permanent skin-folds. The neck-fold was almost identical in both, whilst, although they were differently arranged, deep body-folds occurred in both.

Mr. R. I. Pockock, F.R.S., F.Z.S., Superintendent of the Society's Gardens, exhibited a photograph (text-fig. 201) of a foal born in the Gardens on June 21st and bred between a male Somaliland Wild Ass (*Equus asinus somaliensis*) and a female Mountain Zebra (*Equus zebra*) and made the following remarks:—

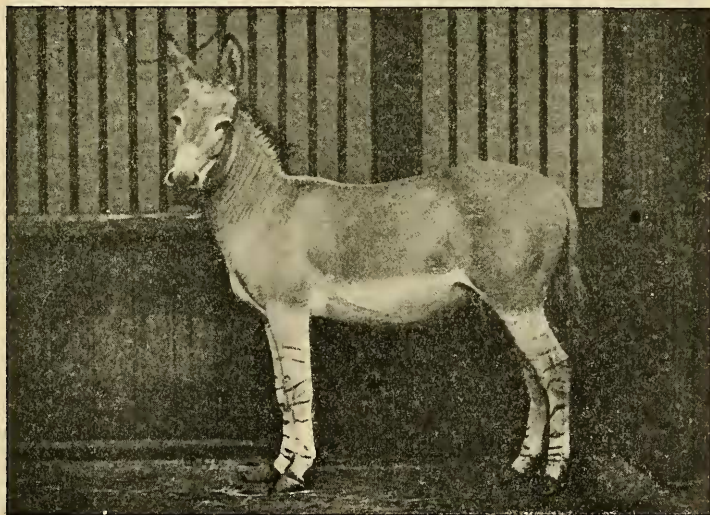
“The period of gestation, dating from the day of service to the birth, was $12\frac{3}{4}$ months. The general colour of the foal is sandy fawn, the ground tint of the legs being markedly whiter. The ears are long, as in both parents, and have a large apical black patch, fading inferiorly in front to brown, and a brown transverse basal stripe, running upwards mesially: a corresponding basal stripe is present on the ear in the dam but not in the sire. There is no white tip to the ear such as is seen in all Zebras. The lips and area round the nostrils are black, and there is no white on the muzzle, such as is seen in all typical Asses. Half-way between the forehead and the muzzle there is an area covered with many close-set narrow brown stripes and some very faint stripes are traceable on the lower edges of the under jaw. The mane is like that of the sire (text-fig. 202), black in the centre and sandy fawn externally, the pale external portion showing no trace of breaking up into evenly spaced tufts, such as are seen in

Text-fig. 201.



Mountain Zebra and hybrid foal.

Text-fig. 202.



Somaliland Ass, the sire of the hybrid foals.

all Zebras. A narrow black spinal stripe extends from the mane to the black tip of the tail, but it is indistinct over the hind quarters and on the upper side of the tail where the hair is long, and recalls the dorsal and caudal mane or crest seen in the foal of Grévy's Zebra. There are a very distinct black shoulder-stripe and a few abbreviated stripes both in front and behind it; there are also indistinct traces of close-set stripes on the lower border of the neck and a deep black belly stripe; but for the rest the body is unstriped and of a tolerably uniform sandy fawn colour all over, like that of the sire. Both front and hind legs are marked with strong black stripes, broader and more numerous than in the sire but much less numerous and more widely spaced than in the dam. On the inside of the legs they extend just above the knees (*carpus*) and hocks (*tarsus*), but externally those of the hind leg reach almost to the stifle-joint (*knee*), while those on the front leg reach to about the same height. The callosities on the front leg are of medium size, being much smaller relatively than in the dam, but actually of about the same size as in the sire; and, as in the latter, there is no dewlap and the hairs along the spine project backwards.

In general appearance this foal, which is a female, decidedly favours the sire on account of the absence of stripes on the body and the sandy fawn ground-colour. But it may be noted that in the presence of the spinal stripe, the shoulder-stripe, and the stripe on the base of the ear, it shows much greater similarity to the typical form of African Ass, as exemplified by domestic breeds, than to the race to which its sire belongs.

Whether the stripes will become more numerous as age advances, remains to be seen.

This appears to be the first record of the birth of a hybrid between the Somaliland Ass and the Mountain Zebra. Several crosses between the domestic Ass and this Zebra have, however, been described. The best extant account was given by F. Cuvier (*Hist. Nat. Mamm. iii. pl. 315, 1824*), who accurately described and figured a hybrid produced by a male black Spanish Ass and a female Mountain Zebra. This animal agreed very closely with the one just born in the Gardens, except that the ground colour, when the animal was fourteen years old, was dark grey even on the legs and there were distinct spots on the basal half of the tail. The distribution of stripes was practically the same in the two; and Cuvier's figure shows no dewlap on the throat. The extension of a crest of hair along the spine from the mane to the tail and the presence of the basal stripe on the ear were noticed by this author. The difference between this specimen and the one born in the Gardens in colour of the body and legs is probably to be explained by the blackness of the coat of the sire; but St. Hilaire, who saw the foal when newly born, mentioned that its general colour was yellowish chestnut; at two years, however, it was grey and this tint was retained until death. The period

of gestation was a fortnight over twelve months, being shorter by one week than in the case of the animal born in our Gardens.

Another hybrid of the same kind is figured on plate 28 of the volume on Horses in Jardine's 'Naturalist's Library.' The animal seems to have been much more copiously striped than our specimen. Many strong but abbreviated stripes are shown running along the saddle behind the withers; the leg stripes extend farther up the quarters and the body, head and neck are marked with indistinct wavy and close-set stripes. The croup, however, seems to have been self-coloured sandy fawn like the rest of the body. In this case it is not known which of the two species was sire and which dam.

In the 'Knowsley Menagerie,' p. 73, two hybrids between Mountain Zebra mares and Asses of African descent are described. One sired by a Maltese Ass is represented by the right figure of the pl. lvii. The ground-colour of the body is dark grey, that of the belly and legs white; the face below the eyes is tan, and there is no white on the muzzle; the ears are large with the tip broadly black and a broad stripe near the base; the mane is grey and unstriped. There are no stripes on the face; but the body and neck are covered with narrow wavy stripes which break up into small spots upon the hind quarters; the shoulder-stripe is very distinct, broader than the others and forked; the belly is unstriped, but the legs are distinctly striped. Except for the presence of spots on the croup, this animal is rather like those figured in the 'Naturalist's Library.'

The second specimen, sired by an ass of unspecified breed, is described as grey with an indistinct cross and a few narrow dark stripes on the shoulder and fore legs [nothing is said about the hind legs]; the upper side of the tail, which is elongate and tufted, is stated to be slightly banded; and the ears are said to be moderate. Attention is drawn to the presence of scarcely any stripes on this animal, which is contrasted on that account with the one sired by the Maltese Ass. Although according to the text and the legends of the plates, this animal is unfigured, the description applies very closely to the specimen represented by the left-hand figure of pl. lvii., which purports to be a hybrid between a male Hemione (= Onager) and a female Zebra.

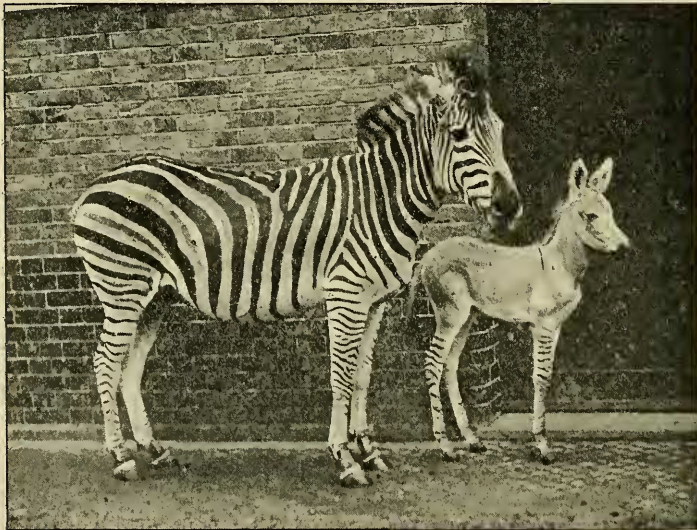
This figure represents an animal sandy fawn in colour with the legs striped, but somewhat sparsely, only slightly higher than the level of the belly which is lighter than the flanks; the head is fawn with some narrow close-set rufous stripes in the middle about half-way between the eyes and the nostrils; the muzzle is ashy grey, without any white; the ears are moderately long, with a black tip; the mane is black in the middle, white externally, the white hairs showing a decided tendency to break up into tufts as in all zebras and quaggas; continuous with the black mane is a black spinal stripe; there is a distinct black shoulder-stripe, followed by several abbreviated and less distinct stripes upon and

just behind the withers. In the text this animal is merely described as having the shoulders and legs banded. Its resemblance to the hybrid just born in the Gardens is very close and, indeed, surprising considering the difference in coloration and general character between the Onager and the Wild Ass of Somaliland. In our hybrid, however, the ears are decidedly longer and the mane shows no signs of being striped. Apart from these differences, there is little to choose between the two. But these differences are sufficient to make one hesitate in adopting the suggestion that the animal described as a hybrid between an Onager and a Mountain Zebra may have been a hybrid between a Domestic Ass and a Mountain Zebra."

[Supplementary note added July 4th, 1911.]

Since the above given account was read a hybrid foal (text-fig. 203) between the same Somaliland Wild Ass and a Chapman's Quagga (*E. quagga chapmani*) has been born. The period of gestation was twelve months and four days from the date of

Text-fig. 203.



Chapman's Quagga and hybrid foal.

service. The foal is very like the Mountain Zebra hybrid. The ears, however, are smaller, as was to be expected from the relatively smaller ears of the Quagga dam. The ground colour of the body, too, is a little paler, while the legs are only slightly paler than the body. The leg stripes are less distinct and less numerous and the insides of the legs are scarcely banded. The

shoulder-stripe is shorter and simpler; the spinal strip is black and zig-zag over the saddle, and very faint, short, narrow, close-set stripes are detectable on each side of it along the back and elsewhere on the body, the hairs of these 'ghost-stripes' being a shade darker and glossier than the spaces between them. The spinal crest is not so pronounced; the apical black patch on the ear is smaller, and the basal stripe, although much narrower, is decidedly blacker. Faint narrow stripes are present on the nose as in the first described hybrid; the lips and area round the nostrils are black, and the two patches above the nostrils which are dark tan in the dam are dark greyish brown in the foal, and somewhat sharply contrasted with the narrow lighter area that intervenes between them and the general sandy grey hue of the nose.

The left-hand figure of pl. lviii. of the 'Knowsley Menagerie' represents a hybrid between a Domestic Ass and a Burchell's Quagga (*E. quagga burchelli*). This hybrid appears to differ from the one above described in having a few quite distinct brown stripes on the body and very few stripes on the legs. The ground colour of the legs, moreover, is markedly whiter. Since Burchell's Quagga differs from Chapman's in having the legs whiter and almost stripeless, the difference in the coloration of the limbs between the two hybrids is not a matter for surprise.

In connection with the two hybrids born in the Gardens and those that have been bred elsewhere previously between the same species, namely *E. asinus* and *E. zebra*, or *E. quagga*, irrespective of the exact race or breed of the species, the following points may be noticed. The white muzzle of *E. asinus* is eliminated. In other respects asinine characters are dominant over zebrine and quaggine characters, as is shown by the absence of stripes on the mane, the disappearance of the white tip to the ear, and the suppression, partial or complete, of the stripes on the neck, head, body, and quarters. Even when stripes are visible on these areas they do not resemble in width and arrangement those of Mountain Zebras and Quaggas, but are more suggestive of the narrower stripes of Grévy's Zebra (*E. grevyi*), as in the case of some horse-quagga hybrids bred by Prof. Cossar Ewart. Examples of typical *E. asinus* carry a dark basal patch on the ear, a spinal and a shoulder stripe, and very frequently distinct or indistinct bars on the legs. The spinal stripe is also frequent on all Asiatic asses; and the Mongolian species (*E. hemionus hemionus*) sometimes shows traces of a shoulder-stripe and of leg-stripes on the knees and hocks as well. The Tibetan Wild Ass (*E. kiang*) has a large dark basal patch on the ear, and spinal, shoulder and leg stripes are commonly visible in many horses. Although the basal ear-patch, the shoulder stripe, and spinal stripe are absent in typical examples of *E. asinus somaliensis*, no one doubts that this race is descended from asses bearing the marks in question. Intermediate forms indeed, with very narrow spinal and shoulder stripes and a dusky patch on the ear, connect the Somaliland Ass with

ordinary domestic varieties; and in all the many foals born in the Gardens between our Somaliland Ass and domestic asses of English and Spanish breeds, the ear-patch, shoulder and spinal stripes were present as in the dams.

The above stated facts suggest that, with the possible exception of the ear-patch in horses, the shoulder and spinal stripes as well as the stripes on the legs have been lost comparatively recently by the species that are without them.

PAPERS.

45. Contributions to the Anatomy and Systematic Arrangement of the Cestoidea. By FRANK E. BEDDARD, M.A., F.R.S., F.Z.S., Prosector to the Society.

[Received May 23, 1911: Read June 27, 1911.]

(Text-figures 204-215.)

II. ON TWO NEW GENERA OF CESTODES FROM MAMMALS.

The following communication to the Society contains an account of the anatomy of two species of Tapeworms, contained in the collection of Cestoidea belonging to the Society. I feel it necessary to refer them to new genera, and the facts which I shall presently bring forward will I hope justify my so doing. The first of these species is certainly near to *Thysanosoma*, and is, as I think, clearly to be referred to the same genus as a species recently described by me * and temporarily referred to the genus *Thysanosoma*. I pointed out, however, in that paper a number of differences from other tapeworms referred to the genus *Thysanosoma*, and intimated that it probably would be necessary to institute a new genus for the worm. This expression of opinion is justified by the discovery of a second species which is clearly of the same genus. The second species considered in the present paper was placed by me temporarily, and in a report to the Prosectorial Committee, in the genus *Bertiella*. It shows, however, some affinities to *Tenia* (*sensu stricto*) and seems on account of various peculiarities, which in due course will be pointed out, to demand the creation of a separate genus.

I shall commence with an anatomical description of the new species allied to *Thysanosoma*; this I place in a new genus which I propose to call *Thysanotenia*.

Thysanotænia lemuris, gen. et sp. n.

An example of a Black-headed Lemur (*Lemur macaco*), which had lived in the Gardens three years and three months, contained

* See No. I. of this series, P. Z. S. 1911, p. 651.